

• COLORADO RIVER •
AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT



OF SOUTHERN CALIFORNIA

Vol. V

JANUARY 25, 1938

No. 2



THE GENE WASH DAM
See story page 3.

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AQUEDUCT NEWS
 THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

306 WEST THIRD ST.
 LOS ANGELES, CALIFORNIA

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. V January 25, 1938 No. 2

M.W.D. Expenditures For 1938 Estimated At \$40,000,000

Estimates prepared by the statistical section under the direction of General Manager Weymouth indicate that the District will expend approximately \$40,000,000 for construction purposes during the year of 1938.

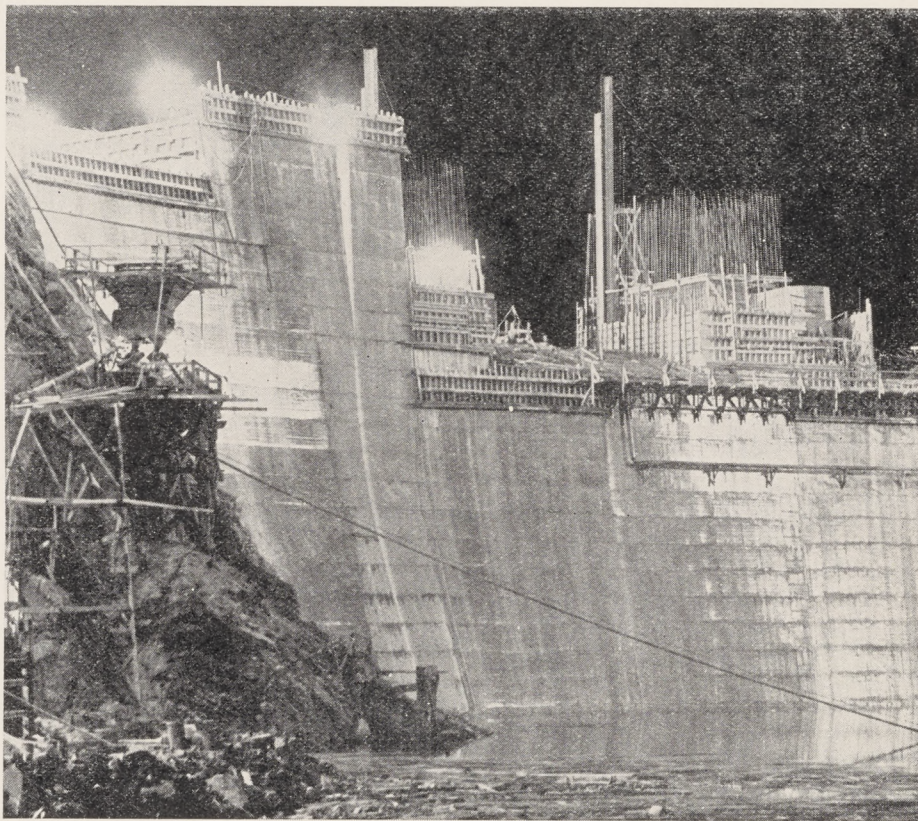
Of this total, \$20,000,000 represents the estimated cost of completing the miscellaneous structures along the main aqueduct, and includes tunnels, dams, fences, pumping plant buildings and installation of equipment, and the completion of two schedules of conduit and siphon (Schedule groups 16 and 19).

The estimated cost for carrying forward present contracts for pipe lines on the distribution system and the Cajalco reservoir during the present year is \$10,000,000, while it is estimated that an additional \$10,000,000 will be spent during the year on work not yet contracted.

The total cost of all work done to January 1, 1938, financed from all sources, amounts to \$154,103,237, or about 70 per cent of the estimated total cost of the project. This total amount for the cost of all work done to date includes work done by the Los Angeles Bureau of Water Works and Supply before organization of the District, and by the City of Pasadena in construction of the Morris Dam.

Funds for the construction of the aqueduct are being obtained from the sale of bonds of the \$220,000,000 Colorado River Waterworks issue voted on September 29, 1931. Bonds sold up to December 31, 1937, total \$137,368,000, of which \$135,868,000 have been sold to the Reconstruction Finance Corporation, and \$1,500,000 to the Public Works Administration.

The District's bonds have maturities ranging from 15 to 50 years. Those sold to the Reconstruction Finance Corporation (Continued on Page 8.)



An interesting night view of Parker Dam construction. The steel work is for the gate structures. The picture was taken from the California side of the canyon.

Directory

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DIVISION ENGINEERS

Division 1.....W. E. Whittier
 Divisions 2 & 3.....O. J. Schieber
 Division 4.....J. B. Bond
 Divisions 5 & 6.....R. B. Diemer
 Distribution.....Robert N. Allen
 Transmission.....W. J. Neale

SUPERINTENDENTS OF CONSTRUCTION

PUMPING PLANTS
 Intake and Gene.....T. T. Walsh
 Iron Mt.....B. H. Martin
 Eagle Mt. and Hayfield.....R. C. Booth

SUPERINTENDENTS

(Main Aqueduct Tunnels)

San Jacinto Tunnel, District Force Acct., B. C. Leadbetter, Gen. Supt.; S. J. Shrode, John Austin and C. E. Sides, Tunnel Supts.; Chas. F. Thomas, Jr., Edwin Noon, Supts.; F. A. Backman, Gen. Foreman.

(Distribution Tunnels)

Monrovia Tunnels Nos. 1, 2 and 3, West Construction Co., H. E. Carleton, Gen. Supt.; E. M. Penn, Concrete Supt.

Monrovia Tunnel No. 4, L. E. Dixon Co., Bent Bros., Inc., and Johnson, Inc., W. N. Evans, Supt.

(Canal, Siphon, Conduit)
 Schedules Nos. 14, 15 and 16,

Thompson - Starrett Co., Inc., Rodney Smith, Gen. Supt.; William Hayes, Excav. Supt.

Schedules Nos. 18, 19 and 20, J. F. Shea Co., Inc., J. G. Shea, Gen. Mgr.; H. F. Rennebohm, Supt.

(Distribution Pipe Line)

Schedules 6P and 7P, J. F. Shea Co., Inc., J. F. Shea, Gen. Mgr.; Ed. H. Shea, Gen. Supt.

Schedule 9P, 10P, 11P, United Concrete Pipe Corp., John Huber, Plant Supt.; Roy Richards, Construction Supt.

Schedules 8C, 9C, 12C, Basich Bros.; Dick Noble, Supt.

Schedule 21SC, 22SC, 23SC, J. F. Shea Co., Gilbert J. Shea, Supt.

(Dams)

Cajalco dam, The Griffith Co., Franz Fohl, Gen. Supt.

Parker Dam, J. F. Shea Co., Frank Crowe, Gen. Supt., H. P. Bunker, Constr. Eng., U.S.B.R.

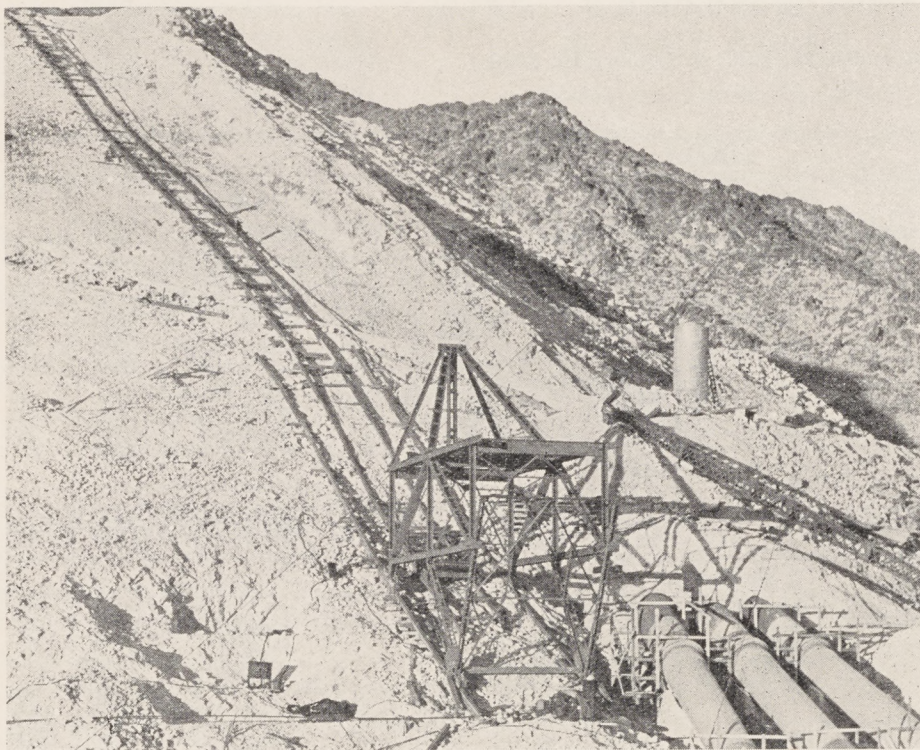
Gene Wash dam, Copper Basin dam, J. F. Shea Co., Frank Crowe, Gen. Supt.

(Pumping Plants)

Intake and Gene, Winston Bros. and Crowell, R. A. Crowell, Supt.; F. T. Hillman, Engr.

Eagle Mountain, L. E. Dixon Co.; J. H. Larkin, Supt.

Hayfield, Dixon and Case; Crawford Strohecker, Supt.



The Hayfield pump lift and the portable gantry built to be used in placing the 10-foot steel delivery line up the steep side of the 444-foot lift.

San Jacinto Past Ten Mile Mark

During the week ending January 22, 1938, San Jacinto crews pushed the excavation of that tunnel past the ten-mile mark. The tunnel has a total length of 13.04 miles, and by January 22, there remained a shade less than three miles still to be driven.

Excavation of this remaining section is expected to progress at an increased rate of speed because of the two new headings now being driven from the foot of the Lawrence adit. On January 22, a total of 194 feet of main tunnel had been driven from this adit, 81 feet of which was east toward Cabazon, and 113 feet being west toward Potrero.

Starting off the new year in high gear, the Cabazon crews by the 22nd of the month had established an average of 31.5 feet per day, with a total of 694 feet of main tunnel excavated. In the same period the Potrero headings were excavated a total of 193 feet at a daily average of 8.8 feet. Water flowing from the West Portal averaged 24,000 gallons per minute.

In addition to passing the ten-mile mark in the excavation of the San Jacinto tunnel, the progress reports show that more than five and a half miles of the tunnel are now lined with concrete.

Parker Dam Now Up 310 Feet

Placing of concrete on the three dams being constructed at the eastern end of the aqueduct is going ahead at a fast and furious rate of progress, and two of the dams, Parker and Gene Wash, are rapidly nearing completion.

On January 22, the highest block in the Parker Dam was at elevation 445, which is 310 feet above the lowest point in the foundation of the dam. On that date a total of 260,100 cubic yards of concrete had been placed, which is approximately 88 per cent of the estimated quantity to be placed. Seepage water in the upstream sump, back of the dam, is now more than 230 feet deep and its surface is at about the same elevation as that of the river above the upper cofferdam.

Concrete in the Gene Wash dam was more than 95 per cent placed by the middle of January, with the highest block being at the crest, which is 138 feet above the foot of the foundation. A total of 14,514 cubic yards of concrete had been placed in this structure on January 22.

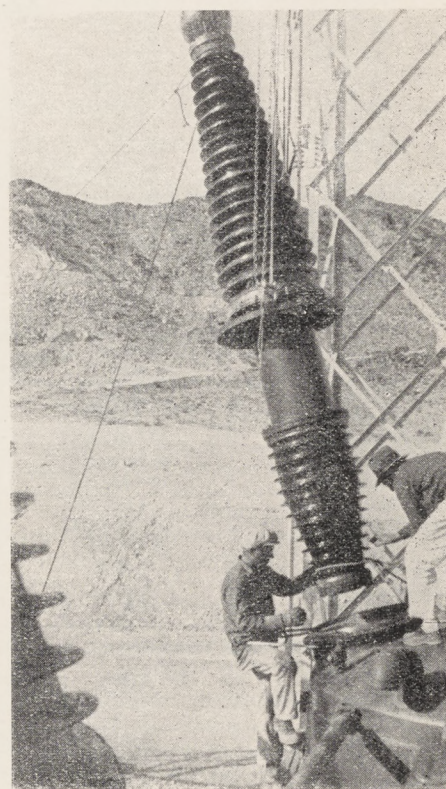
Copper Basin dam, on which concreting was started on December 29, 1937, had been raised a total height of 22 feet by mid-January.

Purchase Orders Total \$12,184,823

Checking over the past records of his division, M.W.D. Purchasing Agent S. A. Joseph reports that this division has done \$12,184,823 worth of business in the last five years, and that during this same period, 1933 to 1937 inclusive, it has directed the forwarding of 46,936 freight carloads of materials to the aqueduct construction work.

This latter figure, however, does not represent the entire amount of material used on the job inasmuch as a large percentage of all types of materials have been shipped by truck. Cement shipments up to December 31, 1937, amounted to 20,600 carloads. This would account for more than 100,000 carloads of concrete aggregates, only about 20 per cent of which are included in the carload forwardings report. In addition to aggregates, many other types of materials are shipped directly to the job by truck.

The amount of money involved in the Purchasing Agent's report accounts for items purchased on individual purchase orders in which the material was used on District force account jobs, and does not include large quantities purchased on contracts such as cement, steel, etc.



Installing one of the giant, 230,000 volt, oil filled porcelain bushings in a circuit breaker at the Iron Mt. Pumping Plant.

CONSTRUCTION

TUNNELS

TUNNEL EXCAVATION (MILES)

	Completed	Remaining
Aqueduct	89.08	3.03
Distribution	16.20	0
Total	105.28	3.03

December 16, 1937, to January 15, 1938

TUNNEL LINING (MILES)

	Completed	Remaining
Aqueduct	84.67	7.44
Distribution	14.43	1.72
Total	99.10	9.16

AQUEDUCT

CONTRACTOR	TUNNEL	LENGTH IN FEET	EXCAVATION IN FEET					LINING IN FEET						
			NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAIN- ING	ARCH OR INVERT	NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAIN- ING	
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	SAN JACINTO	(68,843)			(1,211)	(52,848)	15,995				(2,555)	(29,563)	(39,280)	
	Cabazon Shaft to East Portal	8,880		Completed		8,880	0	{ Arch	0	0	0	8,484	396	
	Cabazon to Lawrence	26,809	90	10.0	899	19,745	7,038	{ Invert	0	0	0	8,484	396	
	Lawrence to Cabazon							53	46.4	2,457	5,312	21,497		
	Lawrence to Potrero													
	Lawrence to Potrero	63	1.0	66	66	0	0	2,855	23,954					
	Potrero to Lawrence	17,672	90	2.4	220	8,649	8,957	{ Arch	26	28.3	737	797	16,875	
	Potrero Shaft to West Portal	15,482		Completed		15,482	0	{ Invert	0	0	0	2,811	14,861	
	Lawrence Adit	5,664	6	1.2	7	5,664	0	{ Arch	0	0	0	14,953	529	
	Cabazon Pioneer							0	0	0	15,482	0		
Potrero Pioneer														
	TOTALS	Ft. Miles	68,843 (13.04)	306	4.0	1,211 (0.23)	52,848 (10.01)	(15,995) (3.03)	Arch Invert	79 0	40.4 0	3,194 0	29,546 29,632	39,297 39,211

DISTRIBUTION

GRIFFITH CO.	CAJALCO OUTLET	2,368	Completed	2,368	0			0	2,341	0	
WEST CONSTRUCTION CO.	MONROVIA NO. 1 (From W.P.)	7,868	Completed	7,868	0	Full Sec. Invert Arch	75	Completed	7,796	0	
	MONROVIA NO. 2 (From Jct. 1)	940	Completed	940	0			Completed	856	0	
	MONROVIA NO. 3	(32,105)	Completed	(32,105)	(0)			* (3,201)	(24,345)	(7,750)	
	East from Adit	11,340		11,340	0			0	12,279		
	West from Adit } From West Portal }			5,913 }				0	19,352	464	
		20,765		14,851 }	0		75	53.4	4,002	10,245	9,571
DIXON, BENT BROS. & JOHNSON	MONROVIA NO. 4 (From W.P.)	8,133	Completed	8,133	0		75	12.3	925	6,804	1,329
	SAN RAFAEL No. 1 (From W.P.)	4,047	Completed	4,047	0			Completed	4,028	0	
	SAN RAFAEL No. 2 (From E.P.)	5,669	Completed	5,669	0			Completed	5,661	0	
	TOTALS	Ft. Miles		61,130 (11.58)	0	Full Section	150	27.5	4,126 (0.78)	51,831 (9.81)	9,079 (1.72)

*Invert considered to equal 0.2 and arch 0.8 of completed section.

Miscellaneous Construction

January 2 to January 15, 1938

AQUEDUCT PUMPING PLANTS AND APPURTENANT WORKS

CONTRACTOR	FEATURES	EXCAVATION—Cu. Yds.				CONCRETE—Cu. Yds.				STEEL—Tons			
		Est. Quan.	Period	To Date	%	Est. Quan.	Period	To Date	%	Est. Quan.	Period	To Date	%
WINSTON BROS. CO. & WILLIAM C. CROWELL	Intake Plant	113,930	0	113,930	100	23,100	596	23,039	99	1,786	34.6	1,719.7	96
WOOD AND BEVANDA	Gene Plant	175,550	0	175,550	100	23,296	158	23,158	99	2,865	1.6	2,823.8	98
L. E. DIXON CO.	Iron Mt. Plant	354,909	0	354,909	100	22,942	0	22,942	100	1,796	0	1,795.7	100
L. E. Dixon & Case Const. Co.	Eagle Plant	270,624	683	264,880	98	28,113	712	27,010	96	2,310	133.9	1,831.5	79
	Hayfield Plant	354,684	0	350,721	99	37,066	2,336	29,278	79	3,323	248.0	1,909.6	57
	TOTALS	1,269,697	683	1,259,990		134,517	3,802	125,427		12,080	418.1	10,080.3	

PARKER RESERVOIR—SIX COMPANIES, INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Diversion Tunnels—Excav.	3,463 Ft.	0	3,463	100
Diversion Tunnels—Concrete	3,363 Ft.	0	3,363	100
Cofferdams—Excav.	227,582 C.Y.	0	227,582	100
Cofferdams—Fill	464,890 C.Y.	0	464,890	100
Outlet Works—Excav.	220,000 C.Y.	0	207,176	94
Outlet Works—Concrete	5,000 C.Y.	0	3,735	75
Dam—Excavation	1,510,200 C.Y.	0	1,508,105	99
Dam—Concrete	297,900 C.Y.	6,503	260,104	87
Power House—Excav.	58,000 C.Y.	0	56,700	98
Power House—Concrete	14,000 C.Y.	544	9,944	71

CAJALCO RESERVOIR—GRIFFITH COMPANY

FEATURES	Est. Quan.	Period	To Date	Percent
Diversion Tunnel	2,000 Ft.	0	2,000	100
Outlet App. Channel—Exc.	199,300 C.Y.	0	199,300	100
Outlet Tower—Concrete	3,290 C.Y.	0	3,250	99
Dam & Spillway—Exc.	693,800 C.Y.	500	689,600	99
Dam—Fill	3,140,000 C.Y.	1,300	3,125,300	99
Dam & Spillway—Concrete	26,820 C.Y.	0	26,820	100
Dike—Excavation	13,950 C.Y.	0	13,950	100
Dike—Fill	3,862,520 C.Y.	0	3,861,940	100
Dike—Concrete	44,160 C.Y.	0	44,160	100

GENE WASH RESERVOIR—J. F. SHEA CO., INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Dam—Excavation	7,500	0	7,500	100
Dam—Concrete	15,000 C.Y.	3,373	13,537	90
Spillway—Excavation	4,762 C.Y.	0	4,762	100
Spillway—Concrete	4,842 C.Y.	28	4,842	100
Dike—Excavation	4,000 C.Y.	0	1,840	46
Dike—Fill	10,500 C.Y.			
Dike—Concrete	1,200 C.Y.	0	200	17

COPPER BASIN RESERVOIR—J. F. SHEA CO., INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Dam—Excavation	8,700 C.Y.	0	8,700	100
Dam—Concrete	16,275 C.Y.	174	786	5
Spillway—Excavation	6,700 C.Y.	0	6,000	89
Spillway—Concrete	1,000 C.Y.			
Outlet Works—Excavation	Lump Sum	5%	10%	10
Gate House Superstructure				
Clearing Reservoir Site	427 Ac.	0	320	75

ION PROGRESS

CANAL, CONDUIT AND SIPHON (MILES)

	Completed	Remaining
Excavation	144.70	0.90
Concrete	142.01	2.54
Back Fill	76.92	3.92

CANAL, CONDUIT, SIPHON & PIPE LINES

January 2 to January 15, 1938

DISTRIBUTION PIPE LINE (MILES)

	Completed	Remaining
Excavation	46.08	17.61
Concrete	46.05	17.64
Back Fill	46.03	17.66

AQUEDUCT

SCHED. NO.	CONTRACTOR	FEATURES	Length In Feet	EXCAVATION—Feet			CONCRETE—Feet			BACKFILL—Feet		
				Period	To Date	Remain'g	Period	To Date	Remain'g	Period	To Date	Remain'g
14	THOMPSON-STARRETT CO.	Conduit and Siphons	32,366	0	32,366	0	0	32,366	0	0	32,366	0
15		Conduit and Siphons	35,849	0	35,849	0	0	35,849	0	0	35,849	0
16		Conduit and Siphons	19,281	1,760	15,950	3,331	1,172	13,958	5,323	1,600	12,406	6,875
18	J. F. SHEA CO., INC.	Conduit and Siphons	27,537	0	27,537	0	0	27,537	0	0	27,327	210
19	J. F. SHEA CO., INC.	Conduit and Siphons	37,109	1,279	35,714	1,395	2,684	28,770	7,339	1,900	24,559	12,550
20		Siphons	18,618	0	18,618	0	0	18,618	0	0	18,618	0
20 A & B	M. W. D.—FORCE ACCT.	Siphons	752	0	705	47	0	0	752	0	0	752
3	WINSTON BROS. CO. & WILLIAM C. CROWELL	Siphon (Gene Inlet)	1,877	0	1,877	0	0	1,872	5	0	1,478	320
4		Siphon (Copper Basin)	450	0	450	0	0	450	0	0	0	0
TOTALS			173,839	3,039	169,066	4,773	2,839	160,420	13,419	3,500	152,603	20,707

DISTRIBUTION PIPE LINES

6-P	J. F. SHEA CO., Inc.	Precast Concrete Pipe	27,294	0	27,294	0	0	27,294	0	0	27,294	0
7-P			30,044	0	30,044	0	0	30,044	0	0	30,044	0
9-P	UNITED CONC. PIPE CORP.	Precast Concrete Pipe	8,697	0	8,388	309	0	8,388	309	0	8,388	309
10-P			10,517	0	10,517	0	0	10,517	0	0	10,517	0
11-P			4,105	0	4,105	0	0	4,105	0	0	4,105	0
10-9C-12C	BASICH BROTHERS	Cast-in-Place Conc. Pipe	1,656	0	708	948	4	570	1,086	0	480	1,176
21SC	J. F. SHEA CO., Inc.	Welded Steel Pipe	28,930	0	0	28,930	0	0	28,930	0	0	28,930
22SC			28,310	0	0	28,310	0	0	28,310	0	0	28,310
23SC			34,470	0	0	34,470	0	0	34,470	0	0	34,470
TOTALS			174,023	0	81,056	92,967	4	80,918	93,105	0	80,828	93,195

COMPLETED FEATURES TUNNELS

	CONTRACTOR	TUNNEL	Length in Miles	Work Started	Work Completed
AQUEDUCT	MORRISON-KNUDSEN CO.	Mecca Pass, No. 1, 2 & 3	1.13	7-17-33	2-10-35
	WEST CONSTRUCTION CO.	Whitewater Nos. 1 & 2	1.94	7-18-33	4-15-35
	SHOFNER & GORDON	Hayfield No. 2	1.03	7-8-33	7-27-35
	HAMILTON & GLEASON	Bernasconi	1.18	4-19-33	11-21-35
	J. F. SHEA CO., INC.	Cottonwood	3.81	6-14-33	12-29-35
	HUNKIN-CONKEY CON. CO.	Hayfield No. 1	1.84	10-21-33	1-9-36
	DIXON & BENT BROS.	W. Eagle—West Portion	2.02	9-8-33	3-12-36
	DRAVO CONTRACTING CO.	Valverde	7.20	6-7-33	10-18-36
	WALSH CONSTRUCTION CO.	Colorado River	1.04	3-2-34	1-29-36
	WALSH CONSTRUCTION CO.	Copper Basin Nos. 1 & 2	2.32	10-4-33	2-20-36
	WALSH CONSTRUCTION CO.	Whipple Mountain	6.11	8-25-33	1-26-37
	UTAH CONSTRUCTION CO.	Iron Mt.—West Portion	3.07	5-15-33	10-23-36
	WINSTON BROS. CO.	Iron Mt.—East Portion	4.48	8-9-33	10-30-36
	METRO. WATER DIST.	1000 Palms No. 1	3.04	1-25-33	1-7-37
	" " "	1000 Palms No. 2	0.73	2-24-33	12-19-35
	" " "	Wide Canyon No. 1	2.71	3-31-33	2-11-37
	" " "	Wide Canyon No. 2	0.16	3-24-33	2-12-37
	" " "	Seven Palms	3.17	4-27-33	2-2-37
	" " "	Long Canyon	2.90	3-6-34	12-31-36
	" " "	Blind Canyon	1.29	3-22-34	12-3-36
	" " "	Morongo No. 1	1.08	4-21-34	1-20-37
	" " "	Morongo No. 2	0.36	12-29-34	1-5-37
	BRODERICK & GORDON	West Eagle Mt.—E. Portion	3.00	2-8-34	5-6-37
	WINSTON BROS.	Coxcomb	3.37	9-15-33	4-26-37
	METRO. WATER DIST.	East Coachella	18.30	1-25-33	5-8-37
	BRODERICK & GORDON	East Eagle Mt.	1.79	6-8-34	7-23-37
TOTALS			79.07		
DISTRIBUTION	J. F. SHEA CO., INC.	Sierra Madre	1.27	9-1-35	10-31-36
	DIXON, BENT BROS. & JOHNSON	Pasadena Extension	1.05	10-5-35	11-24-36
	DIXON, BENT BROS. & JOHNSON	Pasadena	2.30	2-11-35	4-29-37
TOTALS			4.62		

CANAL, CONDUIT, SIPHON, AND PIPE LINES

	CONTRACTOR	FEATURE AND NAME OR SCHEDULE	Length in Miles	Work Started	Work Completed
AQUEDUCT	UNITED CONCRETE PIPE CORP.	Little Morongo Siphon	0.13	2-27-34	8-20-34
	METRO. WATER DIS.	Fan Hill Conduit and Siphon	0.32	10-21-33	11-19-34
	MORRISON-KNUDSEN CO.	Sch. No. 18-J, Big Morongo and San Andreas Siphon	1.86	2-12-35	9-16-36
	GRIFFITH COMPANY	Sch. No. 20-C, 21, 22, 23 & 23-A	12.79	1-5-35	10-13-36
	JAHN & BRESSI CONST. CO.	Sch. No. 5, Canal and Siphons	10.15	12-18-34	11-17-36
	JAHN & BRESSI CONST. CO.	Sch. No. 4, Canal and Siphons	10.08	6-6-35	3-18-37
	UTAH CONSTRUCTION CO.	Sch. No. 9, Canal, Conduit & Sip.	8.97	12-12-34	5-15-37
	BARRETT-HILP & MACCO CORP.	Sch. No. 2, 3, 7, Canal, Con. & Sip.	18.71	12-3-34	5-25-37
	METRO. WATER DIST.	Sch. No. 17, Conduit and Siphons	4.16	9-9-35	6-15-37
	AQUEDUCT CONST. CO	Sch. No. 1,10,11,13 Canal, Con. & S.	26.99	1-24-35	6-24-37
	WOOD & BEVANDA	Sch. No. 6, 8, Canal & Siphons	12.28	11-27-34	7-28-37
	THREE COMPANIES, INC.	Sch. No. 12, Conduit & Siphons	6.24	1-8-35	11-6-37
TOTALS			112.68		
DISTRIBUTION	UNITED CONCRETE PIPE CORP.	Sch. No. 8P, Precast Concrete Pipe	4.65	2-21-36	3-20-37
	WESTERN PIPE & STEEL CO.	Sch. No. 2S, 2B, Welded Steel Pipe	10.33	4-8-36	11-24-37
	AMER. CONC. & STEEL PIPE CO.	Sch. No. 1, 3, 4, 5, Precast Conc. Pipe	15.75	2-20-36	12-23-37
TOTALS			30.73		

Development of Canal Machines

(Continued from January 10.)

The monolithic canal paver as developed by Mr. Wood, of Wood & Bevanda, was a machine designed to follow along the canal behind the sub-grader and to place the concrete lining on the bottom and side slopes in a single operation. Essentials of this operation demanded that the lining must be placed exactly to line and grade, must be well compacted ready for the final finishing by hand, and the operation performed speedily and economically. A great advantage of this machine was that it eliminated the need for construction joints longitudinally along the lines where bottom and side slopes intersect.

The same results were obtained by other contractor's machines as by the Wood & Bevanda paver, although the actual construction of the machines themselves varied in some cases. The principal differences were in the way in which the concrete was distributed along the "bridge" of the paver, and the method in which the concrete was vibrated into place.

The various paving machines averaged a speed of one foot per minute in placing the canal lining, and a total progress of 532 lineal feet of canal lined in an 8-hour shift was frequently attained.



The elbow at the west end of the pre-cast concrete siphon across San Gabriel Canyon on the Distribution System. The siphon connects Monrovia tunnels Nos. 1 and 3.

SAFETY FLAG AWARDS

San Jacinto Tunnel

The safety flag for tunnel driving was awarded to Cabazon for the month of December, and the award for concreting went to East Portal for the same period.

MONTHLY REPORT REVIEWS ACTIVITIES ALONG THE AQUEDUCT LINE

(EDITOR'S NOTE: The following is a brief summary of some of the activities of the District as set forth in the monthly report of General Manager F. E. Weymouth, filed with the Board of Directors in January, covering the work done in December.)

Legal Division

All necessary documents to secure the payment for Interim Certificates Nos. 75 and 76, each in the denomination of \$1,800,000, representing bonds heretofore sold to the R.F.C., were prepared. Payment for these certificates was made on December 9 and December 28, 1937, respectively.

Miscellaneous Activities Division

On December 31, 1937, the District had completed the showing of its motion picture film, "Empire of the West," before 308 college, school, civic, and commercial organizations in Southern California. In addition the picture had been exhibited before scores of governmental and university groups in the United States and Mexico.

Field Engineering and Construction

Safety Engineering—See safety awards, column one.

Testing Laboratory—A total of 131,900 barrels of cement was tested for acceptance during the month.

Operation of Utilities—During the period November 16 to December 15, a total of 4,537,648 kwhrs. of power was used, 11,680 long distance telephone calls were handled, and 2,320,000 cubic feet of water was delivered.

Aqueduct Construction—See progress tables, pages 4 and 5. The Coachella headquarters office at Berdoo Camp was closed on December 11, 1937, and the Division Engineer's office was moved to Thompson-Starrett's camp on Schedule 16 at Mecca Pass. Mainheading excavation in the San Jacinto tunnel was advanced a total of 0.22 mile during the month, making a total of 9.88 miles excavated and leaving 3.16 miles to be penetrated. This is the best monthly advance made during 1937 on this tunnel. Construction on the remaining main aqueduct open work, Schedule group 16 and 19, was continued.

Civil Engineering Division

Specifications—During the month bids were received under nine sets of specifications, and nine sets of specifications were issued.

Design—Work was continued on designs and studies for Cajalco outlet

works, San Gabriel wasteway, and Morris Reservoir connections; sand trap machinery; and Palos Verdes reservoir. A study was made of the cooling requirements for Gene Wash and Copper Basin dams, in which the electrical analogy table was used.

Materials—Shipments of cement totaling 86,605 barrels were made to the field during the month. Orders against contracts were placed for 172 tons of billet steel reinforcement bars, of which 76 tons were ordered for the distribution system and 96 tons for the pumping plants.

Distribution Division

Office and Field Engineering—Estimates and studies were continued relative to the remaining portions of the initial development of the distribution system and the additional construction necessary to complete the ultimate development.

Field Construction—See progress tables, pages 4 and 5. Construction of the concrete paving slab and parapet wall on the Cajalco dam was completed during the month as well as the excavation and lining of the spillway channel. Precast concrete pipe schedules 1P and 3P (American Concrete and Steel Pipe Co.) were completed on December 23.

Electrical Engineering

Office Engineering—Specifications were issued for cable, lightning arresters, current transformers, electric storage batteries, controlled frequency generator sets, and other electrical equipment for the main pumping plants.

Field Construction—See progress tables, pages 4 and 5.

Personnel Division

The net turnover for all divisions for November, 1937, was 4.06 per cent, as compared with 11.15 per cent for November, 1936.

Purchasing Division

Purchase orders for December totaled 1,465 and amounted to \$187,930. See story page 3.

Accounting and Costkeeping

The total cost of the work accomplished to December 31, 1937, was \$154,103,237.

NEWS FROM FIELD AND OFFICE

Out on the desert, and just returning to normal, is Floyd Cornwell, materials inspector at the Eagle Mt. pumping plant who was married to Miss Carrol Lawrence of Mortlach, Saskatchewan, Canada. Floyd, at last accounting, wasn't quite sure, but he thought he was married on December 23, 1937. Anyhoo, he's sure it was just before or just after Christmas.



J. C. Sharp, the man who keeps the wheels turning at Division 1. He is garage foreman at that headquarters and has been with the District since 1932. His first job was on core drilling at Yellow Canyon. He also worked on core drilling along the Coachellas, Whipple Mt. and the Colorado River.

The sound of Christmas bells during the recent holiday season apparently inspired a number of aqueducters to substitute wedding bells instead. Maybe the gents figure they can keep track of their anniversaries easier if they date them from Christmas, to-wit:

* * *

William Shropshire and Vivian Cothran of Banning were married in Las Vegas on January 2, 1938. "Bill" Shropshire is well known as an electrician on the San Jacinto tunnel job.

* * *

Another electrician who got wired up is Ralph Ryon, Banning Headquarters, who was married to Miss Mary Louise Sampson of Glendale on November 11, 1937. (The Christmas idea doesn't apply here, and this is no place to make a wise crack about Armistice Day).

* * *

On December 26, 1937, Kathryn Kirkeby and Ray Spencer of Banning were married at Yuma, Arizona. Ray is in the Banning office, and his bride has been the art instructor in the Banning High School.

* * *

Ivan Dmitri, well known color photographer, made a trip over the aque-

Aqueduct Temperatures

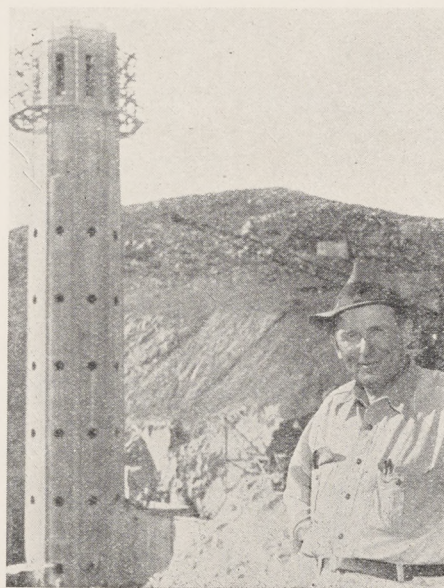
January 1 to January 15, 1938

	Max.	Min.
Div. 1.....	75°	41°
Div. 2.....	73°	41°
Div. 3.....	75°	42°
Divs. 5 and 6.....	74°	31°

duct on January 11 and 12, taking a series of pictures in natural color which are to appear in The Saturday Evening Post in the early spring. A number of series of color pictures by Mr. Dmitri have appeared in previous issues of the Post, the most recent of which were taken at Reno, Nevada. He is also well known for his work in the Conde Nast publications, and for the color advertisements used by the Grace Steamship Lines and the Pullman Company.

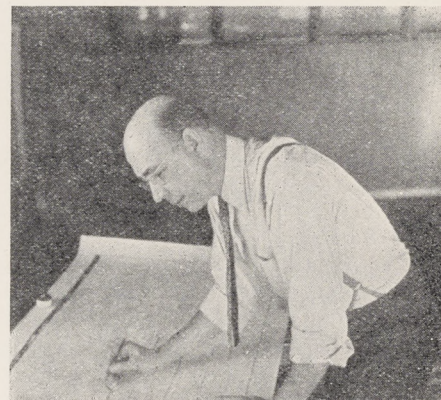
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One of the principal speakers who addressed the January meeting of the Vocational Guidance Association of Southern California was John R. Richards, Los Angeles representative on the District's Board of Directors. The subject discussed was the scientific and common sense methods of ascertaining the vocational possibilities of the young people who are seeking employment. The president of the Association is H. A. Beall, Personnel Officer of the M.W.D.



Finishing up the job at the Cajalco outlet tower is R. C. Cox, engineer for the W. E. Hall Co., the sub-contractor who built the structure.

Al Gardner of the Design Division, whose biography appeared in the January 10 issue of the NEWS, resigned from the District on January 15 to accept a position with the United States Indian Service. He will work on design work in connection with an irrigation dam to be built across the Colorado River below the Parker Dam.



This is the gent who drew all the pretty little mountains and valleys and deserts and clouds on the map that was included in the last issue of the NEWS. In fact he drew all of the map. He's Vern Meyer of the Distribution Division.

The Cajalcoites descended "en mass" on the University Club in Los Angeles on the evening of January 12 to act as a rooting section and lend moral support to Dick Ward and Nick Crossley, who spoke before the American Society of Civil Engineers. Resident Engineer Ward's subject, as might be expected, was "Design and general features of the Cajalco Dam," while Nick Crossley, who is the soil expert at Cajalco, orated on "Soil mechanics as applied to the Cajalco Dam." Both speakers later stated, either modestly or truthfully, that they would rather build dams than talk about them.

* * *

Pete Leal of the Los Angeles Mails and Files section became the proud pappy of a son on January 12, 1938. The young man's name is Peter Leal III and the vital statistics add up to 6-pounds, 14-ounces. Pete, Sr., is said to have made enough money for the first payment on the new heir by leading his cohorts in the office to expect a girl, and then betting the opposite way.

* * *

Draftsman C. B. Anderson has been transferred from Division 2 to Division 3.

Field Forces Plan Elaborate Party On February 19

Planning one of the most elaborate and complete parties yet to be given for aqueduct employees, the Field Forces announce a Dinner and Dance to be held at the Lake Norconian Hotel on the evening of February 19, 1938.

Dinner will be served at 7:00 P.M. in the beautiful ballroom of the hotel and the tickets will be \$1.50 per person. Believing that this will be one of the last social functions to be sponsored by the Field Forces, the Banning committee are making every effort to make it a huge success. They were particularly fortunate in obtaining the use of the Norconian Hotel for the party. This is one of the most renowned resorts in Southern California and is an ideal location for a party of the field and office employees. It is approximately 48 miles east of Los Angeles and 42 miles west of Banning.

Tickets will be available on January 26, and will be placed on sale at all office and field headquarters. Road maps showing the location of the hotel will be printed on each ticket. Other information regarding the party will be posted on office and camp bulletin boards.



Hauling a transformer up "The River Road" from Earp to the Gene Wash pumping plant.

Who's Who On the Aqueduct



M. W. Hawks

M. W. HAWKS

*Assistant Engineer, Statistical Section
Design Division, Metropolitan Water
District*

Born in Tacoma, Washington, January 6, 1896 . . . Graduated from University of California at Berkeley, degree in Civil Engineering, June 1919 . . . 1919-1923, Southern California Edison Co., field surveys, office calculating, estimates and cost data on hydro-electric projects . . . 1923-1926, private practice general contracting and engineering . . . 1926-1928, appraisal, valuation, and right-of-way for Ford, Bacon & Davis, Inc., New York engineers . . . 1928-1929, general design and construction work for Watson, Valle & Gough, Inc., San Diego engineers . . . 1929, had contract for and constructed Bonita School, San Diego County . . . 1929-1930, engineer in charge of plant design for motion picture film process laboratory, Multicolor Inc., Hollywood . . . 1930-1932, contacts, investigations and promotional work for Ford, Bacon & Davis in Pacific Coast area . . . Has been with M.W.D. since February, 1933, in Design Division on statistical work, preparation of estimates, special cost data, and reports . . . Is married . . . Nickname "Monte".

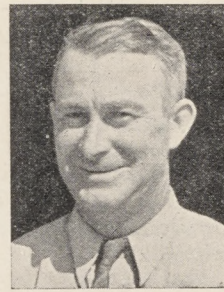
W. R. FARNSWORTH

*Senior Clerk, Compensation Claims
Division, Metropolitan Water District*

A native son and charter member of L. A. Boosters Club, born in Los Angeles, June 9, 1906 . . . Majored in science and literature at University of Southern California . . . Prior to college worked two years as clerk and bookkeeper for Pacific Mutual Life Insurance Co., Los Angeles . . . 1929-1930, secretary and bookkeeper, Los Angeles Gas and Electric Co., Los Angeles . . . 1930-1931, secretary and bookkeeper, Western Air Express, Burbank, Calif. . . . 1931, statistician, Standard Oil Co., El Segundo, Calif. . . . 1931-1932, bookkeeper, Holbrook, Merrill & Stetson, Los Angeles . . . Has been with M.W.D. in Com-



W. R. Farnsworth



R. S. Stoddard

pensation Claims Division since May, 1933 . . . Is married . . . Goes by his middle name, which is "Ross".

R. S. STODDARD

*Chief Inspector, Distribution Division,
Metropolitan Water District*

Born in Milford, Utah, August 8, 1895 . . . 1912-1918, rodman, chainman, and assistant general manager of field development, Delta Land & Water Co., Salt Lake City, Utah . . . 1918-1919, superintendent of construction on irrigation project, Knight Investment Co., Provo, Utah . . . 1919-1921, general foreman on construction of flumes, diversion dam, hydro-electric plant and penstocks, Phoenix Utility Co., Salt Lake City, Utah . . . 1921-1924, assistant superintendent on construction of various types of hydro-electric development for same firm . . . 1924-1925, construction superintendent for California-Oregon Power Co., construction of tunnels, penstocks, power houses . . . 1925-1926, private practice general contracting, Compton, Calif. . . . Inspector and general foreman for Metropolitan Sanitation District of Southern California . . . Has been with M.W.D. in Distribution Division since September, 1933 . . . Had charge of exploratory work at Cajalco, and has been chief inspector on construction of Cajalco dam and dike . . . Is married and has two children . . . Known to everyone as "Bob".

\$40,000,000 TO BE SPENT DURING 1938

(Continued from Page 2.)

puration bear interest at the rate of 5 per cent per annum, but until April 1, 1939, a refund of one per cent is being made, resulting in an effective rate of 4 per cent so long as the bonds shall be held by the R.F.C.

At the present time 17 major construction contracts are being worked on, not including the various features that are being constructed by District forces.